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REPORT

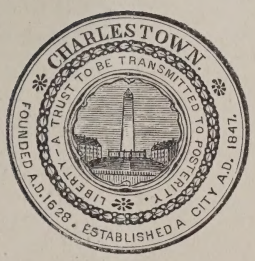
OF THE

MYSTIC WATER BOARD

TO THE

CITY COUNCIL OF CHARLESTOWN,

For the Year 1865.



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REPORT OF THE MYSTIC WATER BOARD.

In Board of Mayor and Aldermen, January 22d, 1866. Passed and sent down for concurrence.

DANIEL WILLIAMS, *City Clerk.*

In Common Council, January 22d, 1866. Concurred.

JOHN T. PRIEST, *Clerk.*

83F46 J. Edward H. Terry 1865, 1867 Cmte. Pam

CITY OF CHARLESTOWN.

In Board of Mayor and Aldermen,
January 22d, 1866.

Ordered, That five hundred copies of the Report of the Mystic Water Board, together with the Reports of the Clerk of said Board, and the Superintendent of the Water Works, for the year 1865, be printed for the use of the City Council. The same to be done under direction of the Committee on Printing, and to be charged to the Appropriation for Contingencies.

REPORT OF THE MYSTIC WATER BOARD.

OFFICE OF THE MYSTIC WATER BOARD,

SAVINGS-BANK BUILDING,

CHARLESTOWN, January 15th, 1866.

To the City Council:

The Mystic Water Board, in pursuance with the requirements of the City Ordinance, respectfully submit their Annual Report, together with those of the Superintendent and Clerk.

The Board is highly gratified in being enabled to say to you that the Works are in very good condition, and that the results of the first year, both in number of takers and the revenue derived therefrom, will bear a very favorable comparison with other cities and towns where water has been introduced, and have exceeded our own estimates.

The almost unprecedented drought of the past summer has demonstrated the capacity of the lake for an ample supply for our own city, and the adjacent places contemplated in the construction of the Works. It has not on any day delivered less than ten million gallons, while the available average from March 1st to December 31st, 1865, will not fall short of thirty millions daily.

The quality of the water is believed to be better than before the construction was commenced. During the past season, consequent upon the overflowing of meadows by reason of raising the waters of the lake, a slight "pondy taste" was manifest, and several acres

of meadow surface, a vegetable matter some four to five feet thick, which had floated to the surface, was removed. Although for a season or two we may have a slight renewal of this taste, it is gratifying to know that, as in the experience of all other water works, it will be entirely eradicated with the drowning-out of the vegetable matter.

The Report of the Superintendent shows the Gate House and Conduit to be in good condition. The Conduit was drawn off twice during the past season, and a thorough examination proved it to be in a perfectly satisfactory condition. The outlet of the waste weir, on the border of the lower pond, was damaged to some extent by the action of the ice and frost upon the cement. It is now in substantial order. The grading about the Dam and Conduit has been entirely finished. At the Engine House, during the past year, a shed and out-building and fence have been erected, drains constructed, gutters paved, and the grading completed. The Board deems it advisable to construct a suitable building for the accommodation of the engineer and firemen, on the engine-house lot, in order that they may be constantly at hand to protect the valuable property there located.

The boilers for the second pair of engines have been delivered, and it is expected that the engines will arrive during the present month. Should they prove equal to the first pair, which, upon a trial had in November last, were found to exceed the requirements of the contract, and the guarantee of Mr. Worthington, the builder, we think it will be safe to say that our city will have the best pumping engines in the country.

The force main pipe and roadway from the engine house are in good order.

The winter of 1864 found our Works simply in working order, and as stated in the report of the Commissioners, much remained to be done to place them in the condition originally intended. During the season of 1865 they have been completed, with the exception of any extension of distributing or service pipes that may hereafter be required.

The brick work of the reservoir having been laid late in the season, considerable repairs were found necessary, and the lot has been handsomely graded and sodded, the roadways finished and

covered with gravel, drains constructed, and the gutters well paved. The entire lot, 10½ acres, has been protected by a high fence.

The supply main, from the reservoir to the city, is in good order, and will answer the requirements for some years to come. The right of way is secured for laying the second line whenever the necessity for its construction shall occur, or the financial condition of the Works warrant the expenditure. In the event of any accident that may occur, an arrangement has been made by which a connection can be readily made with the Boston pipe leading to East Boston, so that we could furnish or receive a temporary supply.

Since March 1st, 6,838 feet distribution pipe have been laid in East Somerville, at a cost of $6,671.30. Nine fire hydrants have also been located there, the expense of which has been paid by the town and abuttors.

The act of the legislature provides that the rates for water furnished Somerville shall not exceed the rates charged for like uses in Charlestown, and that the water for the extinguishment of fires shall be free from charge. Thus, the water for the latter purpose is supplied at an actual cost to this city; and for manufacturing and domestic purposes, (taking in view the liability of taxation to our citizens to meet deficiencies,) upon more favorable terms than to our own people, without incurring any responsibilities. To obviate in some degree this inequality, the Board has, during the past season, required the water-takers in Somerville to pay the cost of trenching for the mains, and that of service pipes and trenching. It is a matter of regret that these favorable terms have not been more fully appreciated by some of the people of that town. In any future extension of the distribution pipes in Somerville, which can doubtless be made advantageous to both parties, the Board is of opinion that some arrangement with the town should be made, whereby the expense should be assumed by it, and the assessment more equitably laid upon its citizens.

The works in the city are in a very satisfactory state. 9,829.6 feet of iron and cement pipe have been laid during the year 1865, in the localities indicated in the report of the Superintendent. The 16-inch pipe in Main street has given some trouble, owing to settlements and difficulties attendant upon laying the same. This difficulty is believed to be temporary; and should this pipe prove

unsatisfactory at the expiration of two years from the time of acceptance, the contractors are under obligation to replace it with an iron pipe of the same dimensions. The average number of leaks in the whole city is very much less than is usual in the same number of miles of other pipes.

The excavations for so many miles of distribution and service pipes in the city have necessarily injured the condition of our streets, and the Board has found difficulty in enforcing the contractors to replace them in as good condition as when commenced. It is purposed, hereafter, to have this portion of the work done by the day, under the direct control of the Board, with the view that it shall be satisfactorily done, and with the expectation that, in the end, it will be quite as economical for the city.

The distribution for the entire city is so nearly completed that no great addition will be required in 1866. A pipe will be required in Parker and one or two other streets; and, should an arrangement with Chelsea be consummated, we shall be required to lay a pipe in Medford street, from the Neck to Chelsea bridge.

Seven hydrants of the "Lowry" pattern were set during the past year, and there are five now on hand, which will be placed at the points recommended by the Chief Engineer of the Fire Department, as soon as the season will permit. A year's experience has fully demonstrated the success of these hydrants, and gives us cause for congratulation that our facilities for extinguishing fires is as effective as any in the country.

It is suggested whether some portion or the whole of the yearly cost of maintaining this portion of the works, may not appropriately be charged to the Fire Department, as in some other cities.

With the exception of the three railroads, all the public establishments in the city are now supplied with Mystic Water. It was confidently expected these roads would immediately take their supply from us. It is well known that every means was taken by the city to obtain a supply without incurring a large debt; and now, having been necessitated to invest so large a sum in this enterprise, it would seem that we are justly entitled to the patronage of all within our limits, — especially as our terms are more favorable than those upon which they are now supplied. The Boston & Maine railroad have been ready from the first; but as the connection for

its supply can be more economically made by making one for all the roads, it has been deferred.

The amount expended on account of the works, since delivered up by the Board of Commissioners, is as follows: —

CONSTRUCTION.

Engineering, including Salaries of Chief and Consulting Engineer,	$2,076.13	
Land Damages,	24.40	
Reservoir,	20,564.17	
Dam,	971.85	
Conduit,	684.59	
Engine House,	2,894.49	
Engines,	376.55	
Grubbing Pond,	1,047.49	
Iron Pipes,	476.06	
Laying Pipes,	463.05	
Pipes for City distribution,	13,537.42	
Hydrants,	4,315.09	
Stop-cocks,	1,657.02	
Contingencies,	1,436.98	
Roadways and Bridges,	286.59	
Lowering Mystic River,	26.10	
Service Pipes and Meters,	19,835.98	
		$77,345.26

MAINTENANCE.

Salaries,	2,562.50	
Printing, advertising, and stationery,	229.54	
Rents and heating,	494.85	
Contingent for tools and other expenses,	2,493.53	

PUMPING SERVICE.

Fuel,	$3,105.80		
Pay of Engineers and Firemen,	1,901.62		
Oil, tallow, tools, &c.,	385.28		
		$5,392.70	$11,173.12
Total amount,			$88,518.38

COST OF WORKS TO JAN'Y 1, 1866. — CONSTRUCTION.

		Dr.
Salaries,	$17,644.61	
Engineering, including salaries of Chief and Consulting Engineer,	31,089.19	
Land Damages,	29,527.01	
Reservoir, including gate-house and chambers,	136,323.67	
Dam,	16,263.21	
Conduit, including gate-house and appurtenances,	129,517.88	
Engine, boiler-house and chimney,	26,949.30	
Engines and appendages,	34,706.69	
Grubbing around pond,	8,898.26	
Iron pipes and special castings,	106,649.85	
Laying iron pipes, feed force and supply mains,	60,750.65	
Pipes for City distribution, including setting hydrants,	92,933.83	
Hydrants,	15,488.46	
Stop-cocks,	13,797.94	
Contingencies,	9,719.55	
Roadways and Bridges,	3,243.57	
Lowering Mystic River,	2,847.21	
Inspections,	1,824.79	
Service pipes, including stop-cocks and meters,	56,350.00	
Somerville distribution,	17,797.50	
Hydrants for Somerville and Medford,	1,353.08	813,676.25

LAND DAMAGES.		*Cr.*
By amount received for wood, &c.,	$330.91	
IRON PIPE.		
By amount received from Gas Co., for crossing railroad bridge,	300.00	
Amount carried forward,	$630.91	

Amount brought forward,	$630.91	$813,676.25

HYDRANTS.

By amount received from Town of Somerville, for Hydrants,	540.00	

CONTINGENCIES.

By amount received for sale of tools,	84.25	

SOMERVILLE DISTRIBUTION.

By amount received for laying pipes to McLean Asylum,	4,100.00	5,355.16
		808,321.09
Interest account to January 1st, 1866, less interest received and premiums,		51,930.45
		860,251.54

MAINTENANCE.

Pumping service,	$8,578.43	
Other expenses,	5,971.42	14,549.85
		874,801.39
Amount received for water rates to January 1st, 1866,		22,419.55
		$852,381.84

There are five or six claims for land damages remaining unsettled, the trials for two of which are assigned for next month.

The Board has thus presented, as briefly as may be, the condition of the important public work entrusted to its charge, and the result of the operations of the first year. The anticipated increased demand for water will lessen materially the proportionate expense of maintenance; and if the project of supplying Chelsea shall be consummated, with the natural increase in our own city, our citizens may reasonably expect that the works will be self-supporting within a few years. To effect this object, the Board is not unmindful of the great necessity of economy, skill, and fidelity

in the management of the affairs, and acknowledge with pleasure the faithful performance of the duties of the several heads of departments, and of the Clerk, whose duties have been performed in an entirely satisfactory manner, — those especially pertaining to the water registry department, requiring a large amount of labor, close attention, and devotedness to the interest of the city, — all of which have been performed in a manner creditable to him, and to the entire acceptance of the Board.

Respectfully submitted,

EDWARD LAWRENCE,
JAMES DANA,
EVERETT TORREY,
EDWIN F. ADAMS,
H. P. DUNNELS.

In Board of Mayor and Aldermen, Jaunary 22d, 1866. Read and sent to the Common Council.

DANIEL WILLIAMS, *City Clerk.*

REPORT OF THE CLERK

OF

The Mystic Water Board,

FOR THE YEAR 1865.

REPORT OF THE CLERK.

OFFICE OF THE MYSTIC WATER BOARD,

SAVINGS-BANK BUILDING,

CHARLESTOWN, January 5th, 1866.

Edward Lawrence, Esq., President Mystic Water Board:

SIR:

I have the honor to submit herewith the annual report required by the Water Ordinance, in which I have included the transactions while performing the duties of Water Registrar under the Board of Commissioners for the construction of the Works.

The total number of water takers on the 31st of December, 1865, was 2,020. The water at that date was supplied to 1680 dwelling-houses, occupied by 2,550 families, 125 stores and shops, 31 manufactories, 120 stables, 6 engine houses, 11 public schools. 22 saloons, 11 offices, the U. S. Navy Yard, State Prison, McLean Asylum, 2 churches, 3 armories, 2 hotels, 1 distillery, 1 brewery, 1 tannery, 1 pottery, 1 public bath-house, and the City Hall building.

The amount received for water rates to January 1st, 1866, was $22,419.55, all of which has been paid into the City Treasury.

The amount due for water rates for 1865 is $4,650.34, making the total amount for 1865, $27,069.85. The annual revenue from the present number of consumers is estimated at $37,000.

The expenses of the office to January 1st, 1866, have been $532.54, for the following items: Extra clerk hire, $117.00; printing, stationery, and advertising, $415.54. This embraces all the charges for these items, incident to the maintenance of the Works from the commencement.

Statement showing the number and kind of Water-Fixtures contained within the premises of water-takers to January 1st, 1866.

181 bathing tubs.
223 water closets.
5 urinals.
1948 sinks.
397 wash-hand basins.
54 private hydrants.
385 taps. These have no connection with any drain or sewer.

Statement showing the number and sizes of water meters in use January 1st, 1866.

Where applied.	SIZE OF METERS.				
	⅝-inch.	1-inch.	2-inch.	4-inch.	
Union Sugar Refinery,		1	1		
Mystic Lake Brewery,		1			
C. Guild & Sons,			1		
Moses B. Sewall,	1				
Charlestown Gas Co.,	2				
E. Trull & Co.,	1				
Ashbell Waitt,	1				
F. M. Holmes & Co.,	1				
Hittinger, Cook & Co.,		1			
Thomas Cunningham,		1			
Boston Iron and Steel Works,			1		
A. Waterman,	1				
Merriam & Norton,	1				
Geo. L. Stearns & Co.,	1				
Mass. State Prison,				1	
Stickney & Poor,	1				
F. C. Sewall,	1				
E. L. Gilman & Co.	1				
U. S. Navy Yard,				2	
George S. Hall,	1				
Amos Brown,	1				
Middlesex Horse R. R.	1				
John P. Barnard,	1				
Geo. L. Stearns, Medford,	1				
Oakman & Eldridge, Somerville,	1				
E. R. Sawyer, do.	1				
R. B. Stickney, do.	1				
S. A. Carlton, Somerville,	1				
H. Partridge, do.	1				
South Down Co. do.	1				
Lowell R.R. Cattle Station, Somerville,		1			
Skilton, Foote & Co., Somerville,	1				
John Stowell,	1				
Marine Barracks,		1			
Total number,	25	6	3	3	37

The requirement of the 9th section of the Ordinance, relative to visiting the premises of water takers, has been complied with so far as practicable, in person, and the examinations made have resulted in the correction of the rates to the advantage of the City.

Respectfully submitted,

WM. W. PEIRCE, *Clerk.*

In Board of Mayor and Aldermen, January 22d, 1866. Read and sent to the Common Council.

DANIEL WILLIAMS, *City Clerk.*

REPORT OF THE SUPERINTENDENT

OF THE

CHARLESTOWN WATER WORKS,

FOR THE YEAR 1865.

REPORT OF THE SUPERINTENDENT.

Charlestown, January 1st, 1866.

Edward Lawrence, Esq., *President Mystic Water Board:*

Sir, — In conformity with the rules of the Water Board, the following Report for the year 1865 is respectfully submitted: —

The Water Works at the present time are, generally, in good condition.

"CONDUIT."

The water has been drawn from the conduit twice the past year, — on July 12th, and September 18th. A thorough examination was made of the same, and it was found to be quite clean, and in good order in all other respects. The brick-work, at the outlet of the waste weir, was found to be insufficient to withstand the frost, and has been removed, and granite masonry substituted for the same.

"RESERVOIR."

The work of construction at the Reservoir has been completed, and quite extensive repairs have been made in the brick and stone work. The water has been wasted from the Reservoir twice, the past year, — once in June and once in November. The Reservoir was thoroughly cleaned, and some slight repairs made in the concrete bottom, which have perceptibly diminished the leak.

"SUPPLY MAIN."

The Supply Main, from the Reservoir to Charlestown, is now in good condition. It will probably be necessary, at some future time, to have a second supply main laid between the reservoir and the city, as there are places where leaks are liable to occur that would probably require more than one night to repair them.

"STOP-GATES."

I would suggest, for the consideration of the Board, the expediency of placing a few more stop-gates in the distribution pipes in the city. There are a number of places where it is necessary to shut off several streets, to make repairs or connections, to the great inconvenience of those who depend on the Mystic water for family use or manufacturing purposes.

Five of the gates connected with the Lowry hydrants are out of order. They are located as follows: —

One 8-inch at the junction of Pearl and Bartlett streets.
" 6-inch " " " Front and Arrow "
" 4-inch " " " Monument Sq. and Concord st.
" 4-inch " " " Linden and Medford streets.
" 4-inch " " " Cook and Bunker Hill streets.

The schedule annexed contains a statement of the kinds and amount of pipe laid, stop-gates and hydrants put in, and number of leaks repaired. Also, daily average consumption of water, depth of water in conduit, level of the surface of lake, and temperature of water; weight of water in rain gauge, and materials and tools on hand.

Statement of wrought iron and cement distribution-pipe laid in Charlestown in 1865.

Name of Street.	8 in. Length in feet.	6-inch. Length in feet.	4-inch. Length in feet.	3-inch. Length in feet.	2-inch. Length in feet.	Total.
Common, - - -			221.5			221.5
Tremont, - - -			124.3			124.3
Harvard Square, -					291	291
Prescott, - - -					127.5	127.5
Main, - - -	566	127	30	977		1700
Harvard Place, - -					103.5	103.5
State Prison, - -	6					6
Hittinger's Wharf, -				480		480
School, - - -			7			7
Pleasant Street Court,					80	80
Church Court, - -					111.5	111.5
Mystic Place, - -					120	120
Webster, - - -			416.5			416.5
Cambridge, - -	739					739
Call Street Place, -					135.5	135.5
Payson Place, - -					88	88
Navy Yard, - -	52	5				57
Austin, - - -		382.5				382.5
Wall, - - - -			554			554
Sullivan, - - -			231			231
Avon Place, - -					82	82
Cedar, - - -			202.3			202.3
Hancock, - - -			261			261
Chelsea, - - -		7	7			14
Haverhill, - - -		425				425
Charles Street Court, -					249	249
Short Street Court, -					102	102
Walker Street Avenue,					309	309
Concord Avenue, -					151.5	151.5
Exeter Place, - -					109	109
Bunker Hill Court, -					146	146
Belmont, - - -			632			632
Columbia Court, -			257			257
Brighton, - - -			566.5			566.5
N. Mead, - - -			142.5	87		229.5
N. Mead Street Place,					100	100
	1363	946.5	3652.6	1544	2323.5	9829.6

Statement of Wrought Iron and Distribution Pipe laid in Somerville and Medford, in 1865.

Names of Streets.	30-inch. Length in feet.	6-inch. Length in feet.	4-inch. Length in feet.	2-inch. Length in feet.	Total.
Broadway, - - -		647	1661	142	2450
Reservoir, - - -	225				225
Walnut, - - - -		453.5			453.5
Myrtle, - - - -			210		210
Perkins, - - - -		666	37		703
Florence, - - - -			453		453
Franklin, - - -			34		34
Cutter, - - - -			631		631
Webster, - - - -			505.5		505.5
Pearl, - - - -			568		568
Mt. Pleasant, - - -		605			605
	225	2371.5	4099.5	142	6838

Statement of Iron Distribution Pipe laid in Charlestown, in 1865.

Names of Streets.	12-inch. Length in feet.	8-inch. Length in feet.	6-inch. Length in feet.	4-inch. Length in feet.	Total.
Austin, - - - -			12		12
Cambridge, - - -		48	12	6	66
Haverhill, - - -			16	6	22
State Prison, - - -		14			14
Navy Yard, - - -	17		26		43
Dorrance, - - -			6	12	18
Fitchburg R. R. - -			202		202
	17	62	277	24	377

Statement of Iron Distribution Pipe laid in Somerville and Medford, in 1865.

Names of Streets.	30-inch. Length in feet.	12-inch. Length in feet.	6-inch. Length in feet.	4-inch. Length in feet.	Total.
Reservoir, - - -	16				16
Hydrants, - - -				32	32
Broadway, - - -		3	3		6
Walnut, - - - -			9.5		9.5
Engine House, - -			6		6
	16	3	18.5	32	69.5

Summary of Pipes and Stop-Gates laid in Charlestown, Somerville, and Medford, in 1865.

MAIN PIPES.

	DIAMETER IN INCHES.							Aggregate.
	30-inch.	12-inch.	8-inch.	6-inch.	4-inch.	3-inch.	2-inch.	
Iron Pipes, -	16	20	62	292.5	56			446.5
Cement Pipes,	225		1363	3318	7752.1	1544	2465.5	16667
Stop-Gates, -			3	11	18	2	17	51

Summary of Pipes and Stop-Gates laid in Charlestown, Somerville, and Medford, in 1865.

SERVICE PIPES.

	DIAMETER OF PIPES IN INCHES.				Aggregate.
Number of Services, 1006.	1-inch.	¾-inch.	⅝-inch.	½-inch.	
Length of Lead Services, - -	84	391	6,585	15,706	22,766
Number of Stop Cocks, Corp. - -	6	12	205	577	800
Number of Stop Cocks, Services, -	6	14	112	866	998

Summary of Pipes and Stop-Gates,— Charlestown Water Works, December 31, 1865.

MAIN PIPES.

	DIAMETER OF PIPES IN INCHES.											Aggregate.
	36	30	24	16	12	10	8	6	4	3	2	
Iron Pipes,	974	3581	16557		80		62	504.5	266			22,024.5
Cement "		405		5206	472	3182	22234	37533	40755	1544	6682	118,014
Stop Gates,		2	2	3	2	5	30	117	148	2	69	380

SERVICE PIPES.

	DIAMETER OF PIPES IN INCHES.					Aggregate.
Number of Services, 1,994.	2-inch.	1-inch.	¾-inch.	⅝-inch.	½-inch.	
Length of Lead Services, -	17	181	6,007	18,426	29,256	53,887
Semi-elastic Services, - -	80	588	51		240	929
Iron and Glass Services, -		64				64
Number of Stop-Cock Corp. -		12	38	447	1,131	1,628
Number of Stop-Cock Services,		10	38	430	1,591	2,069

The Bitumen pipe laid at Waterman's wharf and Hittinger's wharf, Charlestown, and at Walnut street, Somerville, has been removed, and cement pipe laid in place thereof.

HYDRANTS.

During the past year fifteen hydrants have been established, as follows:

Lowry hydrants in Charlestown,	7
Common hydrants in Charlestown,	1
Common hydrants in Somerville,	7
Number of hydrants established to Jan. 1st, 1866:	
Lowry hydrants in Charlestown,	104
Common hydrants in Charlestown,	5
Common hydrants in Somerville and Medford.	26
Total,	135

Statement of the Number of Leaks Repaired, from April 1, 1865, *to January* 1, 1866.

	DIAMETER OF PIPE IN INCHES.						
	24-inch.	16-inch.	8-inch.	6-inch.	4-inch.	3-inch.	
Iron Pipes, - -	11						
Cement Pipes, - -		15	9	3	7	1	
Total, - -							46

Consumption of Water.

DAILY AVERAGE NUMBER OF GALLONS DRAWN FROM RESERVOIR.

June.	July.	August.	September.	October.	November.	December.
577,150	739,219	860,414	899,132	822,973	507,447	565,984

Statement of Observations.

		MONTHLY AVERAGE.						
		June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
Depth of Water above the bottom of the Conduit,		Ft. In. 4.6	Ft. In. 3.8	Ft. In. 4.6	Ft. In. 4.6	Ft. In. 4.6	Ft. In. 4.6	Ft. In. 4.6
Surface of Lake above the bottom of the Conduit,		9.11	10.2	10.1½	9.10½	9.8¾	10.2½	10⅜
Depth of Water at the Reservoir, - - -		11.0	17.7	20.4	20.5	20.6	15.1	17.9
Temperature of the air in the shade, at Mystic Lake,	6 A.M.	70.43	73.4	70. 8	67. 5	48.74	41.43	28.76
	12 M.	72. 2	79.5	77.64	74.76	56.65	46.33	33.66
	6 P.M.	76. 2	78.8	77. 7	74. 1	54.	45.	30.17
Temperature of Water in the Gate House, -		75.0	75.86	77.41	72.5	60.75	47.38	38.61
Depth of Water on six feet overfall, - - -		Inches. 3.3	Inches. 1.4	Inches. 1	Inches. 0	Inches. 0	Inches. 1.5	Inches. 1.8
Weight of Water in Rain Gauge, - - -		Oz. 177	Oz. 321	Oz. 155	Oz. 54	Oz. 454	Oz. 281	Oz. 254
Depth of Rain Fall, inches,		1.77	3.21	1.55	0.54	4.04	2.81	2.54

NOTE.—The Conduit is 5 feet 8 inches in height. High water mark in the Lake is 11 feet 2 inches above the bottom of the Conduit.

MATERIALS ON HAND, EXCLUSIVE OF TOOLS.

Iron pipes,		3	of	36	inches diameter.
"	"	8	"	30	" "
"	"	31	"	24	" "
"	"	4	"	8	" "
"	"	2	"	6	" "
"	"	12	"	4	" "
"	stop-gates,	1	"	24	" "
"	"	1	"	8	" "
"	"	2	"	6	" "
"	"	7	"	4	" "
"	sleeves,	2	"	36	" "
"	"	8	"	30	" "
"	"	5	"	24	" "
"	"	3	"	16	" "
"	"	2	"	8	" "
"	"	7	"	6	" "
"	"	11	"	4	" "

Iron clamp-sleeves, 2 of 30 inches diameter.
" " " 2 " 24 " "
" " " 1 " 6 " "
" " " 2 " 4 " "
" Lowry hydrants, 6 " 10 " "
" common " 3 " 4 " "
" geared " 2 " 4 " "
" hydrant-bends, 4 " 6 " "
" " " 4 " 4 " "
" quarter turns, 1 " 8 " "
" saddle hubs, 2 " 4 " "
" plugs, 1 " 12 " "
" " 2 " 6 " "
" " 2 " 4 " "
Composition corporation stop-cocks, 95 " $\frac{1}{2}$ " "
" " " " 49 " $\frac{5}{8}$ " "
" " " " 23 " $\frac{3}{4}$ " "
" " " " 2 " 1 " "
" " " " 11 " $1\frac{1}{4}$ " "
T stops and wastes, 169 " $\frac{1}{2}$ " "
" " " " 205 " $\frac{5}{8}$ " "
" " " " 14 " $\frac{3}{4}$ " "
" " " " 10 " $1\frac{1}{4}$ " "
" " " " 5 " 2 " "
Quarter-turns, 7 " 2 " "
Lead pipe, 3,587 lbs., $\frac{1}{2}$ " "
" " 3,323 " $2\frac{1}{2}$ lbs., $\frac{5}{8}$ " "
" " 3,091 " $3\frac{1}{2}$ A. A., $\frac{3}{4}$ " "
" " 2,798 " $2\frac{3}{4}$ lbs., $\frac{5}{8}$ " "
" " 3,600 " $3\frac{1}{4}$ A., $\frac{3}{4}$ " "
" " 138 lbs., 2 inches diameter,
" " 245 lbs., 1 " "
" " 1,513 lbs., pieces,
" " 482 lbs., scraps,
Lot 2 and 4-inch bitumen pipe,
135 lbs. fine solder,
112 lbs. plumbing solder,
$1\frac{1}{2}$ bbls. cement, 448 lbs. pig lead,
30 feet 3-inch drain pipe, 1 water gauge and fittings,

1 $\frac{5}{8}$-metre,
Iron pipes, (cracked) 76,411 lbs.,
7 pieces pipe, 12,400 lbs,
Cut stone, 778 cubic feet,
23 cut-stone window-sills and caps,
2 " door-sills "
Spruce lumber, (new,) 6,325 feet,
" " (old,) 7,000 "
76 service-box covers,
21 service boxes,
10 stop-gate frames, 8 covers,
2 Lowry hydrant heads, 4-inch,
1 " " head, $2\frac{1}{2}$-inch,
2 " " valves,
1 " " plug,
9 " " boxes, 1 base,
8 " " frames and 14 covers,
6 " " wastes,
6 meter boxes, 4 frames and covers,
1 Boston hydrant box,
4 " " frames and covers,
31 " " rings, 10 bolts,
800 lbs. bolts, nuts and hoop iron,
15 feet 8-inch drain pipe,
10 bars $1\frac{1}{2}$-inch round iron,
1 " 1 " " "
1 " $\frac{7}{8}$ " " "
5 " $\frac{3}{4}$ " " "
8 " $\frac{5}{8}$ " " "
2 " $\frac{3}{4}$ " square "
1 " $1\frac{1}{8}$ " " "
12 gallons sperm oil,
1 gallon kerosene oil,
180 lbs. tallow,
5 lbs. cotton waste,
40 lbs. hemp packing,
1 yard canvas packing,
1 horse and harness,
1 wagon, 2 blankets.

TOOLS AT HEAD-GATE HOUSE.

3 iron bars, 3 chains,
2 hoes, 3 grapples,
2 ice chisels, 4 oars,
1 pail, 1 dipper,
1 lantern,
2 log hooks, 6 shovels,
1 spirit level, 2 boat hooks,
4 row locks, 2 nets,
50 lbs. rope, 1 grindstone.

TOOLS AT ENGINE HOUSE AND TOOL HOUSE.

6 iron bars,
1 chain,
1 drilling machine,
1 blacksmith's bellows,
1 " sledge,
2 " tongs,
2 " anvils,
1 portable forge,
1 " bellows, extra,
1 differential block and fall.
12 files,
2 copper oil-cans,
2 " oil-fillers,
2 coal shovels,
2 coal barrows,
1 Fairbanks' barrow scales,
1 " grocers' "
10 draw bolts,
1 hand bellows,
1 ratchet drill and brace,
1 hand drill,
2 iron clamps,
5 paint-brushes,
1 spirit-level,
1 grindstone,
1 vice-bench,
2 vices,
1 four-wheeled truck,
1 plane, 1 chisel,
1 saw, 1 square,
2 lanterns,
1 set pipe dies, from $\frac{1}{4}$ to 2-inch,
1 " taps, " $\frac{1}{4}$ to 2-inch,
1 " tongs " $\frac{1}{4}$ to 2-inch.
3 hand pumps,
2 stocks,
16 socket wrenches,
11 open "
3 screw "
12 drills,
12 cold chisels,
1 die-plate and taps,
Lot of pattern and core boxes,
1 axe, 1 striking-hammer,
3 long stone drills,
1 hand hammer, 12 sets,
2 caulking-irons,
12 wheelbarrows,
50 lbs. old rope,
1 clock, 1 table,
1 desk, 6 chairs,
1 stove, 1 record-book,
1 slate, 2 brooms,
1 oil-tank and drain,
3 water pails, 1 ice-cooler,
3 sections $2\frac{1}{2}$ fire-hose & fittings,
2 " $\frac{3}{4}$ " " " "
3 stone-cutting hammers,
1 " hammer,
5 " drills,
21 " points,
19 " chisels,

6 reflecting kerosene lamps,
10 lamp-chimneys,
9 oil-cans,
1 table, 3 ladders,
2 step-ladders,
1 rain-gauge,
2 picks, 6 shovels,
24 barrow-handles, 3 hand pumps,
3 pipe scrapers,
6 derrick blocks,
1 derrick drum and fittings,
1 pair pipe calipers,
1 centreing-cross,
3 lead furnaces,
1 " kettle and ladle,
1 12 inch pump and frame,

TOOLS AT RESERVOIR.

1 iron bar, 1 hoe,
3 watering pots, 1 dipper,
5 rammers, 1 chain,
1 pair stone shears,
2½ bbls. cement,
2 pigs lead,
Lot of old picks,
1 hydrant wrench,
2 pinch bars,
2 water pails,
6 mason's hods,
1 force pump and hose,
1 net, 4 brooms,
2 derrick blocks,
2 gate wrenches.

TOOLS AT CHARLESTOWN SHOP.

6 hydrant-gate wrenches,
2 service " "
2 small " "
10 drills,
1 dipper, 1 pail,
1 broom, 1 bar,
2 earth rammers,
2 hammers,
2 chisels, 2 lanterns,
2 oil-cans,
2 bit-stocks,
4 picks, 3 shovels,
1 stove and pipe,
1 screw-driver,
1 hand-cart,
1 tool-box,
1 tape-line,
1 water-pot,
1 stone-hammer,
1 Fairbanks' scales,
1 hand saw,
2 soldering-irons,
1 bench-vice,
1 soldering-furnace,
1 " pot,
1 trowel.

WALTER ROBBINS, *Superintendent C. W. W.*

In Board of Mayor and Aldermen, January 22d, 1866. Read and sent to the Common Council.

DANIEL WILLIAMS, *City Clerk.*

ADDENDA.

REPORT

ON PUMPING ENGINE, No. 1.

REPORT OF

Consulting Engineer on Pumping Engines.

January, 1865.

EDWARD LAWRENCE, ESQ.

President Mystic Water Board:

SIR,—I herewith submit the first Annual Return of the performance of Worthington Pumping Engine, No. 1, as deduced from the daily records, kept by W. C. Scott, Engineer in charge. During the year past the Engine has been in use thirteen hundred and thirty-two hours and fifteen minutes (1332 h 15 m.) for supplying water to Walnut Hill Reservoir. During that time it has delivered thereto 266.752.325 gallons of water, with a coal consumption, while pumping, of 416.117 pounds. The average duty ol each pound of coal is, therefore, 774.445 pounds of water raised one foot high. This computation being made from actual *deliveries* of water and of coal consumed in pumping, gives the average effect in "duty" of the year. So gratifying a performance of the mcst essential part of our pumping work, requires no comment, other than it is probably the best average annual duty performed by any Water Works Pumping Engine in this country. Engine No. 1, is in still better condition than when last reported.

Engine No. 2, is in a good state of forwardness, and will probably be ready to place in operation during the coming summer.

Respectfully submitted,

C. L. STEVENSON,

Consulting Engineer C. W. W.

MONTHLY RECORD

FOR THE YEAR 1865, OF WORTHINGTON PUMPING ENGINE, No, 1.

Month.	Pumping Time. h. m.	Gallons raised to Reservoir.	Lbs. Coal used for Pumping.	Lbs. Tallow used.	Gallons Oil used.	Lbs. Cotton Waste used.
January,	108.10	19.689.600	35.400	12	1	4
February,	73.30	14.733.750	26.600	10	1	4
March,	52.00	10.541.250	16.255	6	1	3
April,	Completing Reservoir;		no pumping.			
May,	132.00	29.066.475	42.625	31	½	5
June,	172.00	32.570.400	49.320	10	½	5
July,	165.00	32.129.850	46.075	19	½	5
August,	168.00	35.344.500	47.725	18	1	5
September,	158.15	30.500.000	46.447	18	1	5
October,	75.30	14.943 600	23.800	9	¼	5
November,	168.00	34.941.000	57.025	17	1	
December,	10.00	12.291.900	24.845	7	1	
Total,	1332.15	266.752.325	416.117*	157	8¾	41

* 266.000 lbs. of Coal were also used for banking, firing and testing Engine Boilers, &c. and sundry other purposes.

Average duty for the year, 774 445 raised one foot high per pound of coal.

Number of gallons raised to Reservoir, 641 per lb. of coal.

UNIVERSITY OF ILLINOIS-URBANA
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GOVERNMENT

CHARLESTOWN WATER WORKS,

1866.

MYSTIC WATER BOARD.

EDWARD LAWRENCE, *President*,
JAMES DANA,
EVERETT TORREY,
EDWIN F. ADAMS,
G. FREDERICK HURD.

Water Registrar and Clerk of Board,
WILLIAM W. PEIRCE.

Superintendent,
WALTER ROBBINS.

Consulting Engineer,
CHARLES L. STEVENSON.